

RED STICKER OFF-HIGHWAY RECREATIONAL VEHICLE (OHV) ASSESSMENT UPDATE

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OHV COMMISSION MEETING

PRESENTATION OUTLINE

- **OHV Program Status Update**
- Population Evaluation
- OHMC User Survey
- Emissions Testing
- Findings and Next Steps

INTRODUCTION

- **ARB Staff went to the Board in 2013 to propose evaporative controls for OHVs**
- **At that time, the Board approved the proposal for green sticker evaporative controls and directed ARB staff to conduct an assessment of the red sticker program**
- **The purpose of the assessment is to investigate the evaporative and exhaust emissions impact of red sticker OHVs**
- **This assessment includes a vehicle population evaluation, emissions testing, and a user survey**

ASSESSMENT COMPONENTS

$$\text{Emissions} = \text{Vehicle Pop.} \times \text{Activity} \times \text{Emissions Rate}$$

Exhaust Emissions = # of vehicles \times miles driven \times g pollutant/mile

Evaporative Emissions = # of vehicles \times hours stored \times g pollutant/hour



**POPULATION
EVALUATION**



**USER
SURVEY**



**EMISSIONS
TESTING**

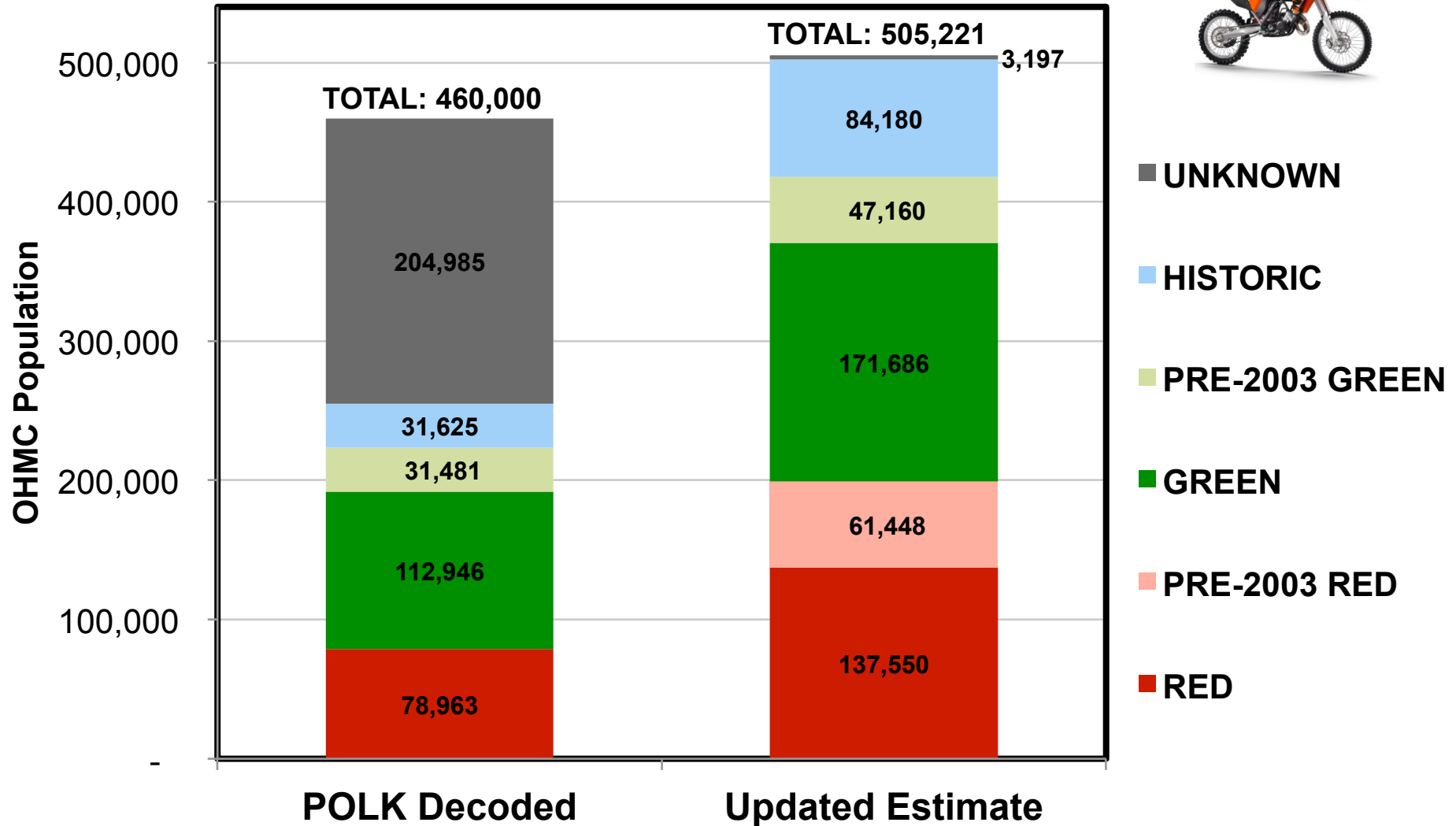
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POPULATION EVALUATION PROCEDURE

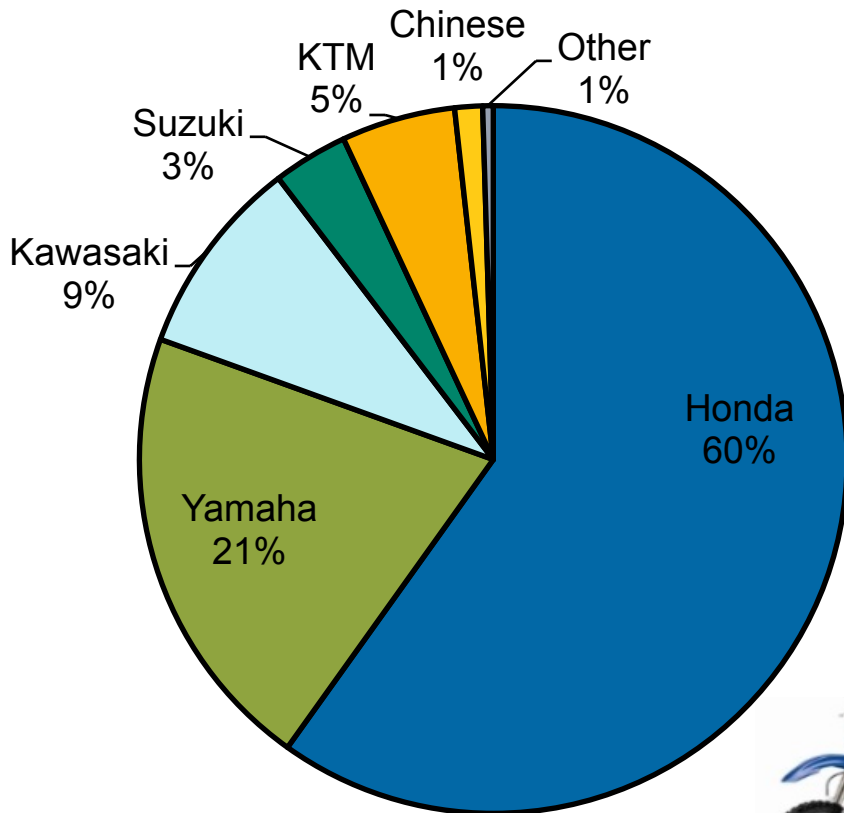
1. **Received DMV data for red sticker off-highway motorcycle (OHMC) assessment**
 - Used to select models in test matrix and survey participants
2. **Found that the POLK VIN decoder used was not developed to recognize off-road vehicles**
 - Only select models from major manufacturers were identified
3. **Conducted analysis to further identify OHV population**
 - Manually decoded and sorted 2.6 million DMV records
 - Digitized entire ARB certification database
4. **Broke down population by sticker type and category using the certification database**
5. **When completed, this research will be utilized to build a VIN decoder for OHVs**

2013 OHMC POPULATION



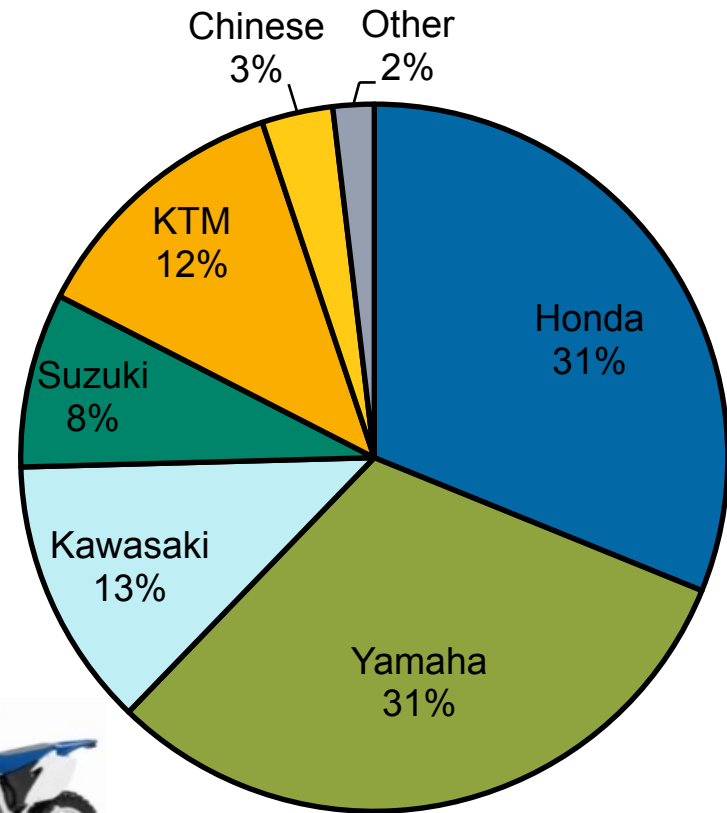
OHMC POPULATION BY MANUFACTURER (2003-CURRENT)

GREEN Sticker OHMCs



Total: 171,686

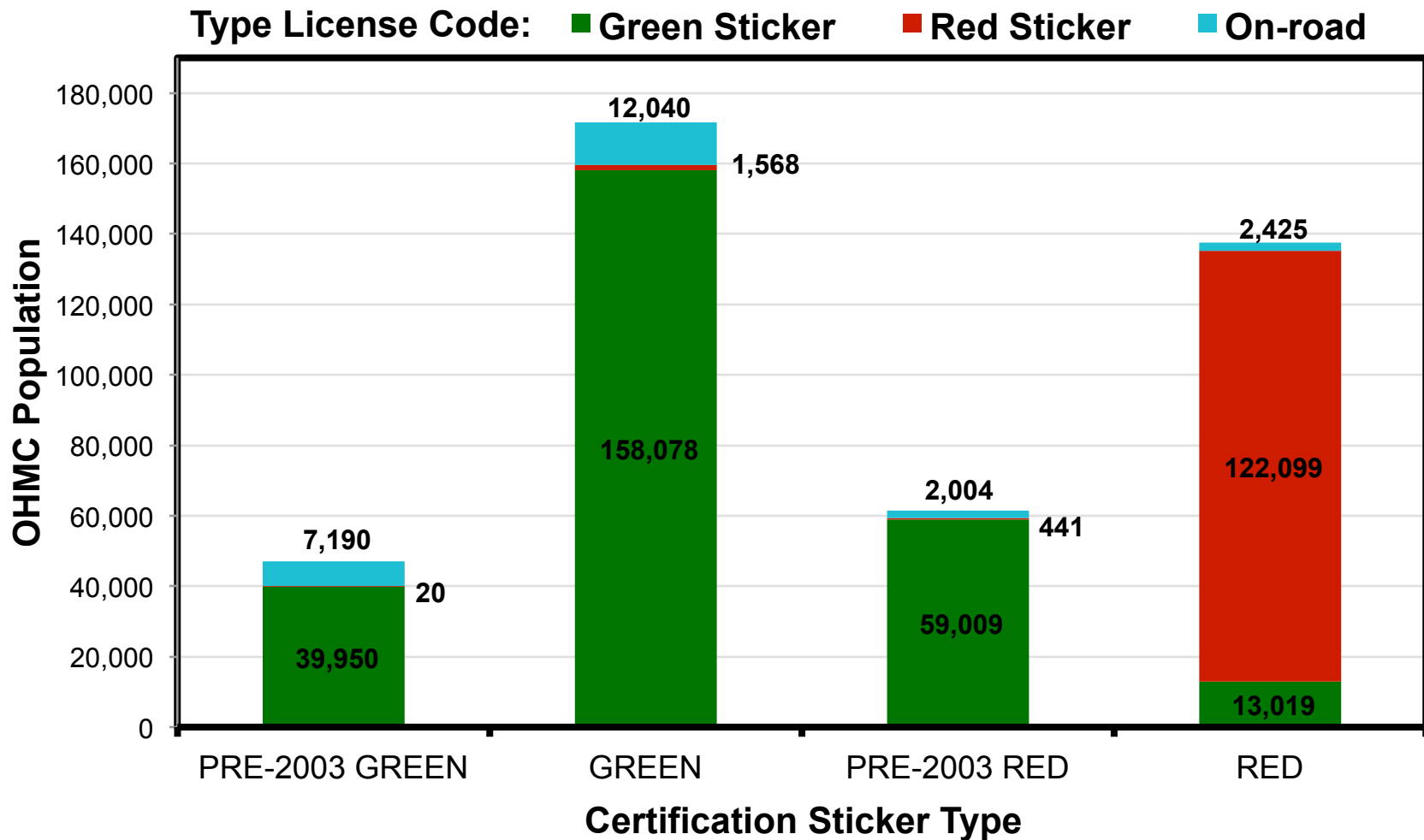
RED Sticker OHMCs



Total: 137,550

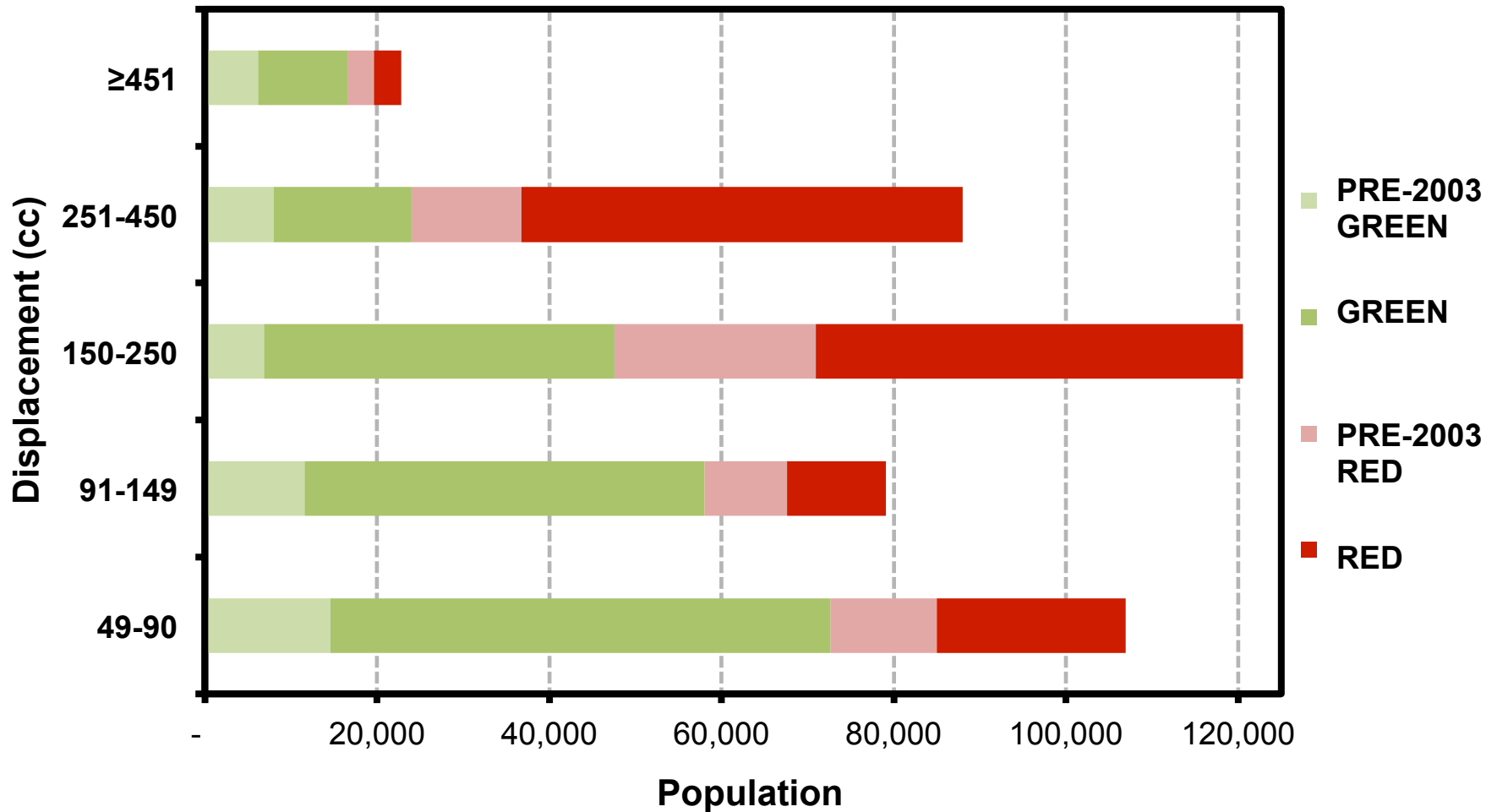


OHMC REGISTRATION BY STICKER TYPE

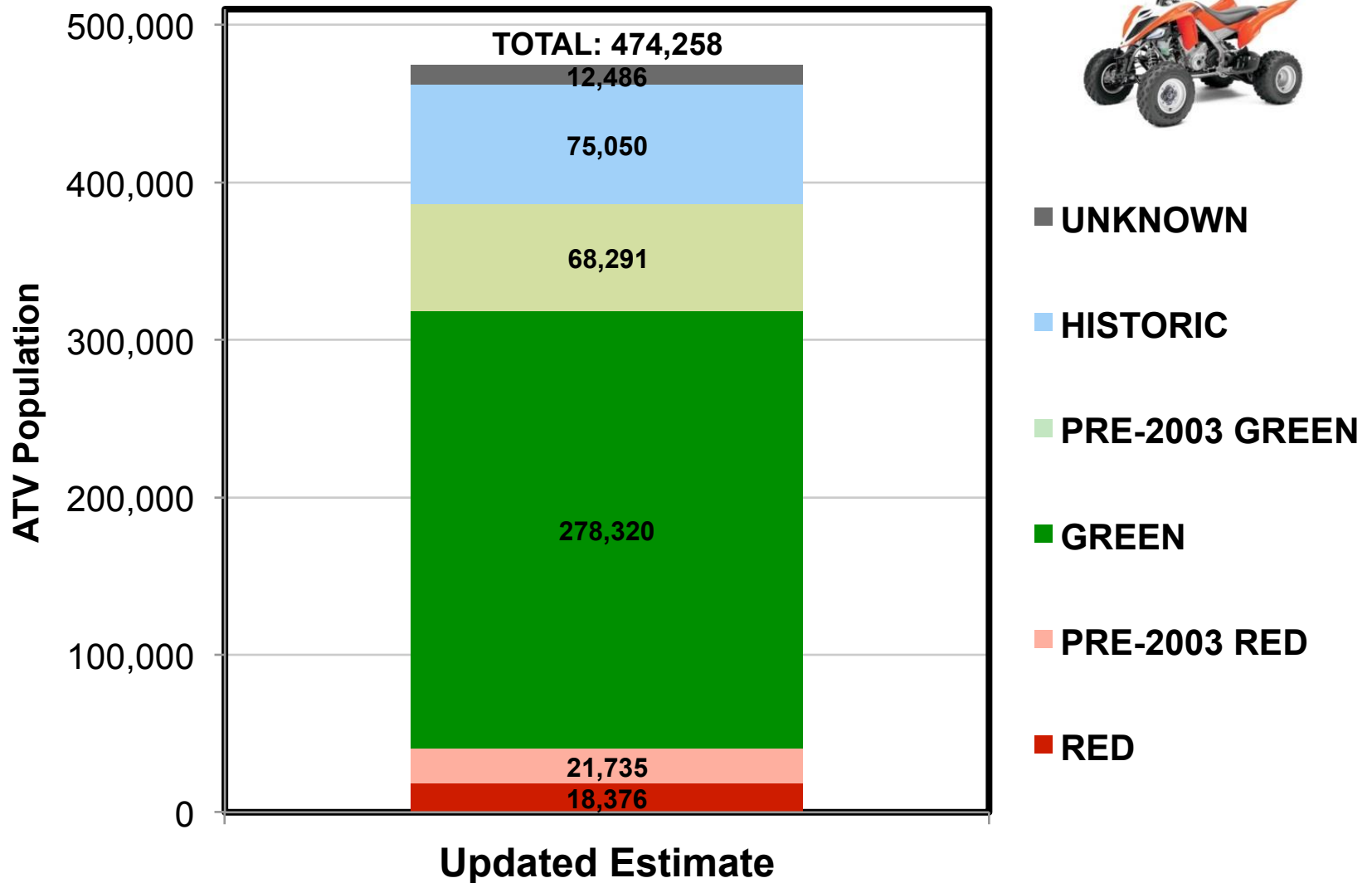


DISPLACEMENT COMPARISON

OHMC Displacement by Sticker Type

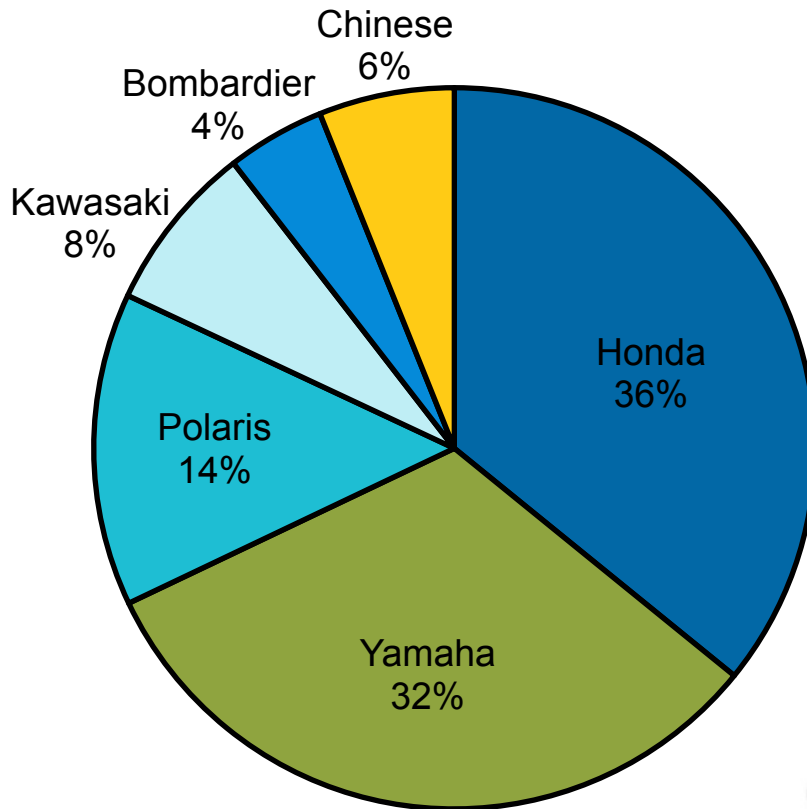


2013 ATV POPULATION



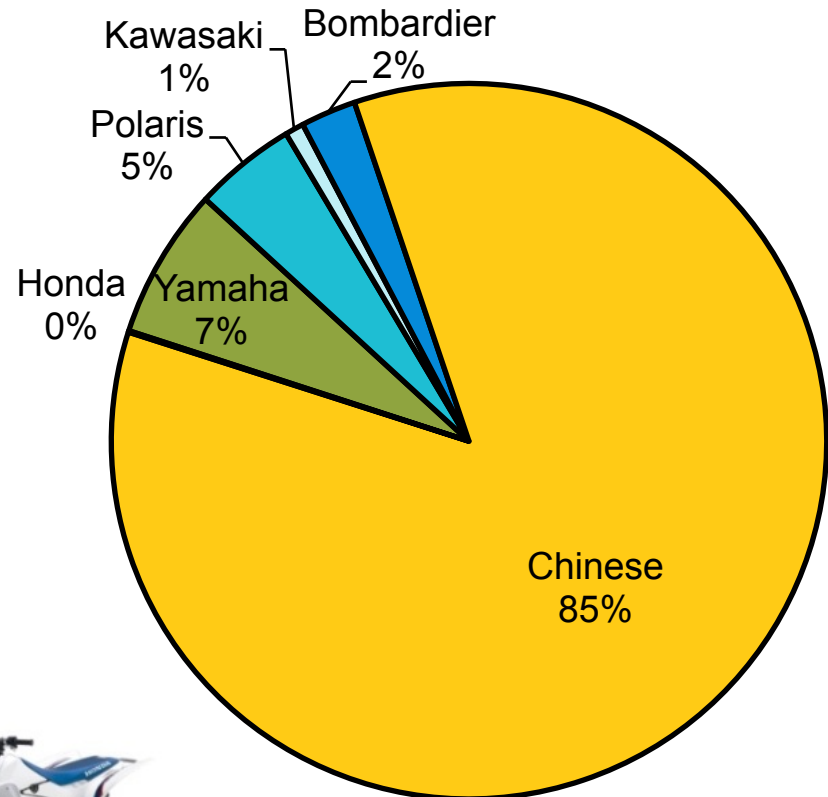
ATV POPULATION BY MANUFACTURER (2003-CURRENT)

GREEN Sticker ATVs



Total: 278,320

RED Sticker ATVs



Total: 18,376



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OHMC USER SURVEY

- **Activity and usage survey being conducted by UC Davis**
 - Collaboration between ARB and the State Parks OHV Division
 - Results will help us to understand rider preferences and to quantify vehicle usage
- **Postcard invitation to participate in online survey randomly sent to registered off-highway motorcycle and dual sport owners**
- **The survey will gather 2,900 responses from owners of 1,200 red sticker, 720 green sticker, 500 historic, and 480 dual sport OHV owners**
- **Minor revisions are being made and main survey is expected to begin in October 2015**

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EMISSIONS TESTING OBJECTIVES AND SELECTION CRITERIA

OBJECTIVE: To investigate red sticker off-highway motorcycle (OHMC) evaporative and exhaust emissions

- Conduct emissions testing on 18 new and in-use OHMCs
 - Vehicles selected based on 2004 – 2012 DMV registration data
- Evaluate emission differences between OHMC categories
 - Two-stroke/four-stroke
 - Carbureted/fuel-injected
 - Unmodified/modified



EMISSIONS TEST FACILITIES

Evaporative Testing



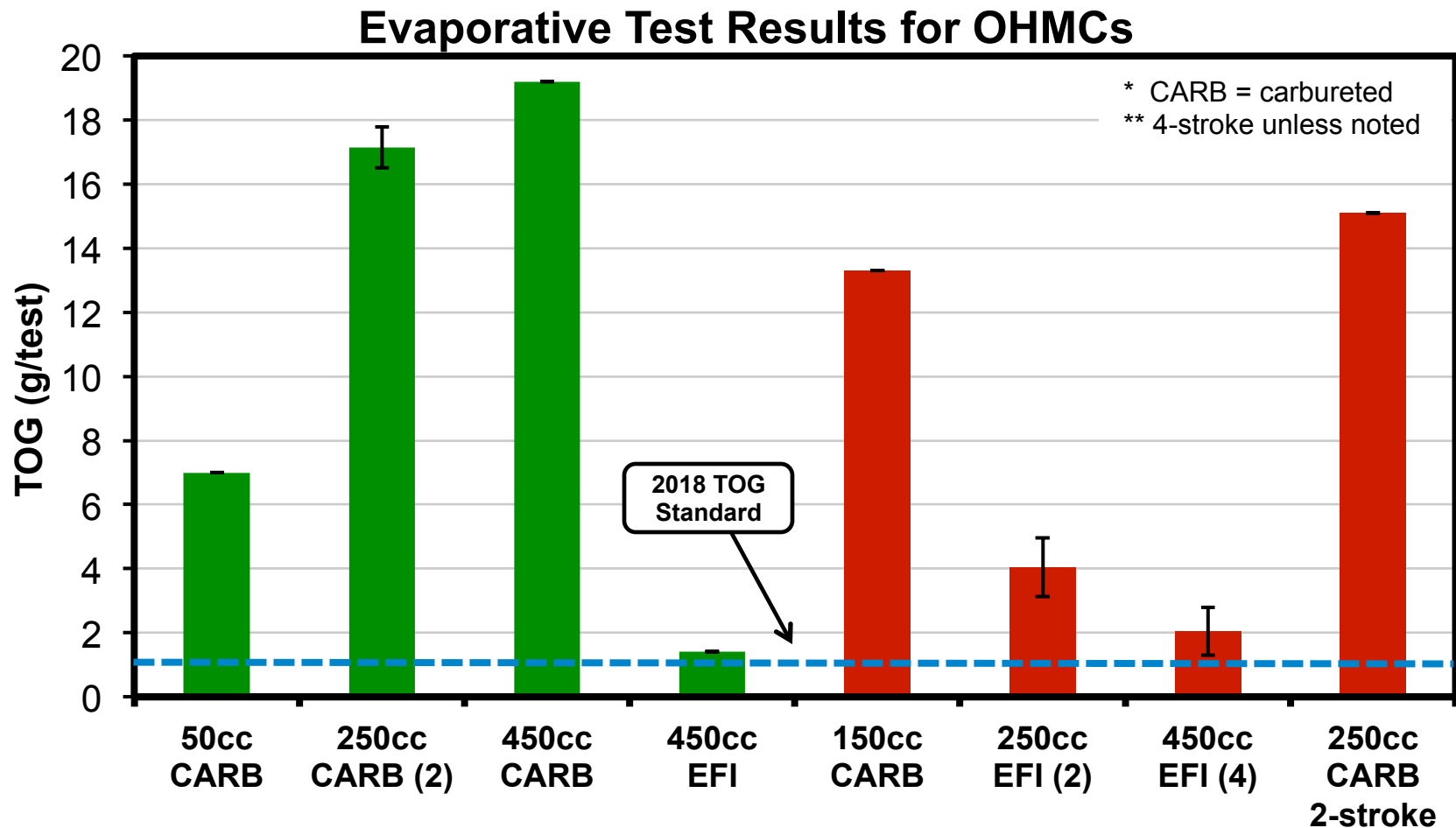
Sealed Housing for Evaporative Determination (SHED)

Exhaust Testing

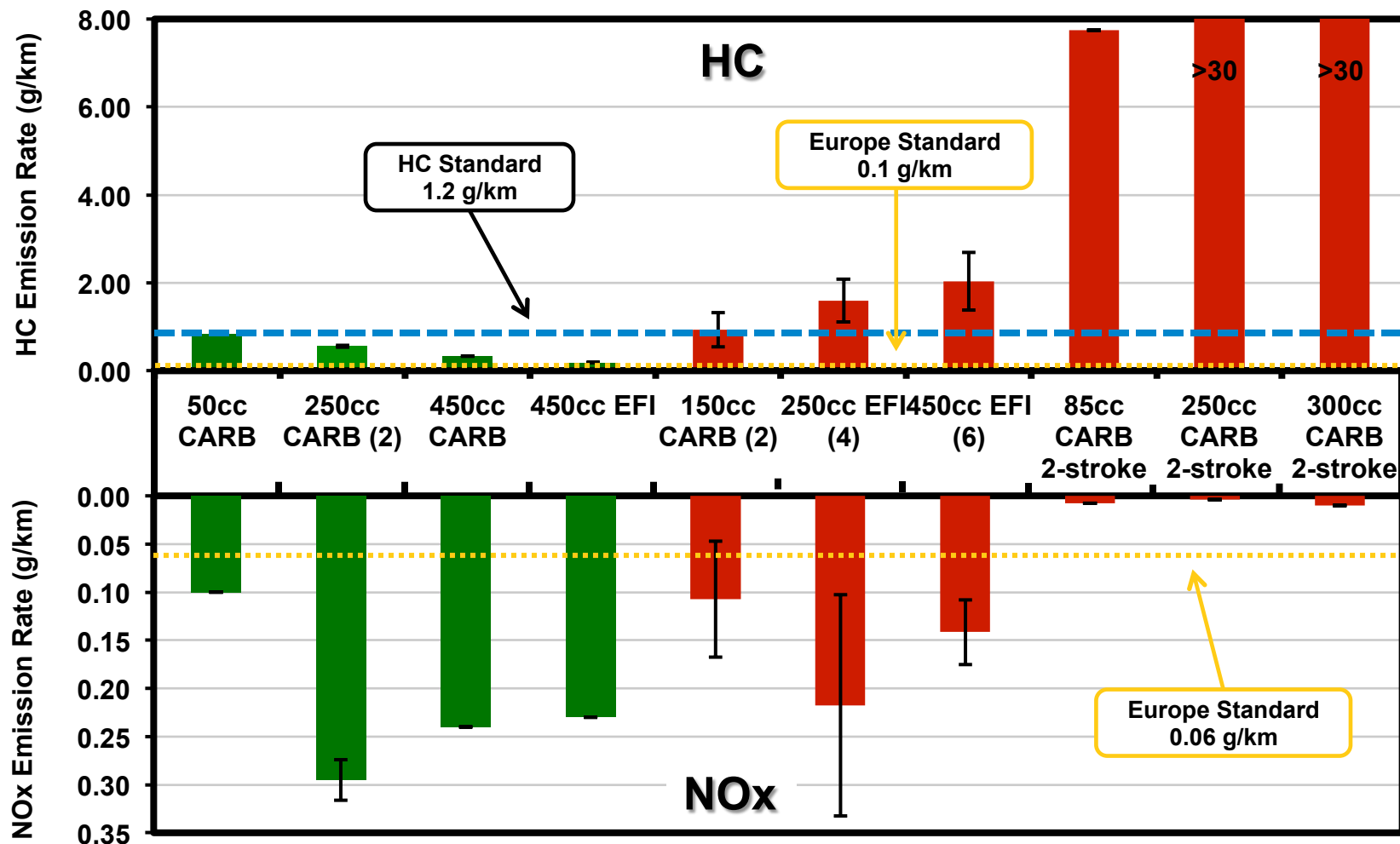


Motorcycle / ATV Dynamometer

PRELIMINARY EVAPORATIVE EMISSIONS TEST RESULTS



PRELIMINARY EXHAUST EMISSIONS TEST RESULTS



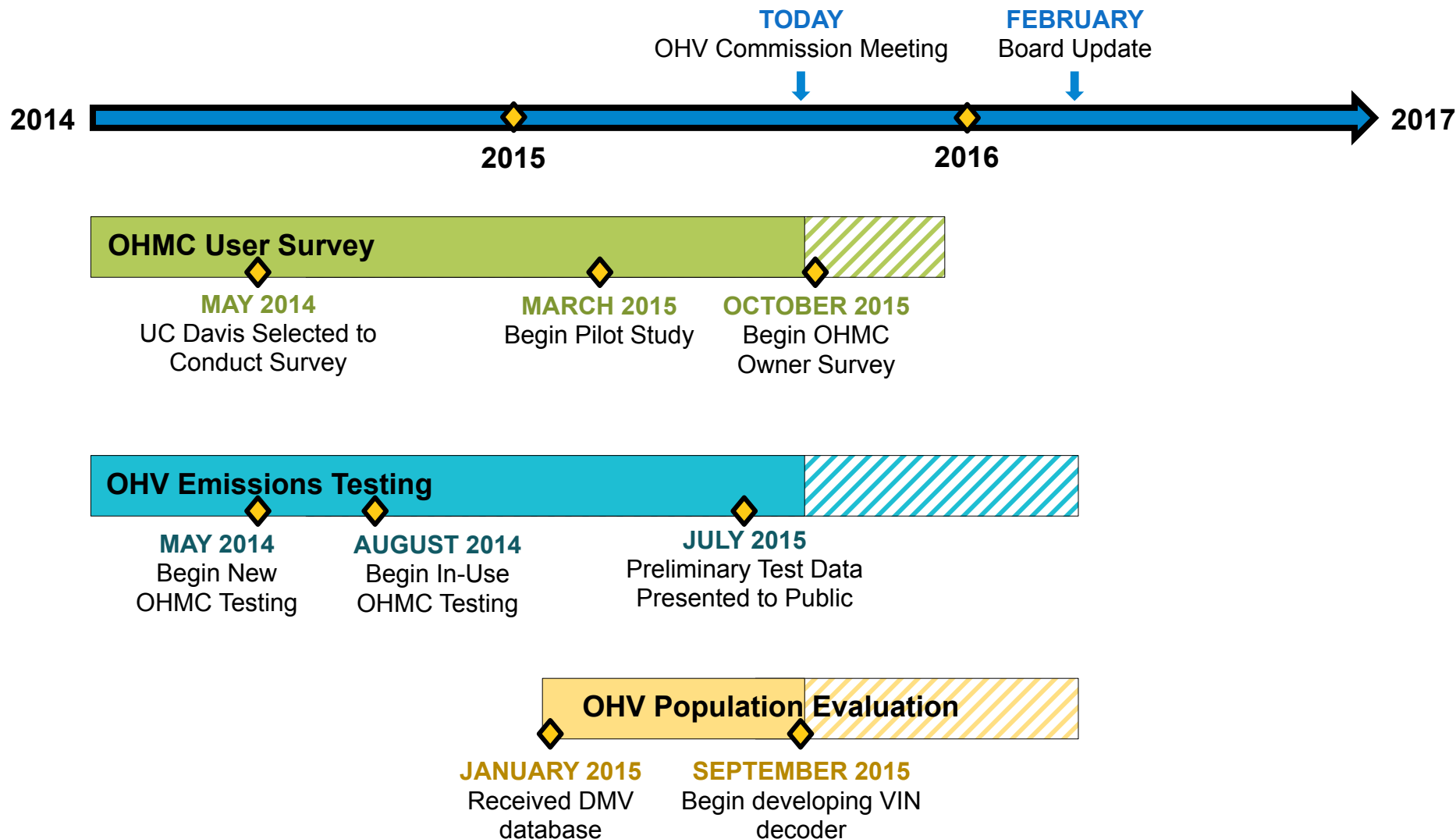
PRESENTATION OUTLINE

- OHV Program Status Update
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- Emissions Testing
- **Findings and Next Steps**

MAJOR FINDINGS

1. **The population of red sticker OHMCs is 2.5x larger than indicated by utilizing the POLK VIN decoder**
2. **Vehicles are not always issued the correct registration**
3. **75% of red sticker OHMCs have displacements >150cc**
4. **Findings from OHV user survey are expected in Winter 2015**
5. **Larger displacement 2-stroke OHMCs emit levels of HC exceeding instrument upper limits**

PROJECT TIMELINE



NEXT STEPS

- **Continue emissions testing to complete test matrix**
- **Evaluate responses from usage and activity survey**
- **Build VIN decoder from newly decoded data**
 - Acquire Model Attribute Matrix (MAX) model from MIC to define OHV characteristics
- **Host technical working group meeting and a stakeholder workshop to share final survey data**
- **Update Board in February 2016**

ARB STAFF CONTACT INFORMATION

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For more information and to sign up for our list serve, please visit:

<http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm>

QUESTIONS?

